

WHAT IS CLAIMED IS:

1. An optical scanning apparatus having:

a light modulating element capable of
changing the propagating state of light;

5 an illuminating optical system for
illuminating said light modulating element with light;
and

a scanning optical system for scanning the
light from said light modulating element;

10 said scanning optical system having a light
deflector for selectively deflecting a beam of the
light from said light modulating element which
propagates in a predetermined direction.

15 2. An optical scanning apparatus according to
Claim 1, wherein said light modulating element is an
element for changing the propagating state of light
chiefly by diffraction, deflection or scattering, has
the function of forming a light diffracted, deflected
20 or scattered or forming a light not diffracted,
deflected or scattered, in conformity with an input
signal, comprises, for example, an electro-mechanical
element or a liquid crystal element, and forms a light
diffracted, deflected or scattered in conformity with
25 an ON signal and forms a light not diffracted,
deflected or scattered in conformity with an OFF
signal.

3. An optical scanning apparatus according to Claim 1 or 2, wherein said scanning optical system has a projection optical system for projecting said beam from said light deflector.

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4. A projecting apparatus having:

a light modulating element for modulating light chiefly by diffraction, deflection or scattering;

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an illuminating optical system for illuminating said light modulating element with light; and

a scanning optical system for scanning the light from said light modulating element;

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said scanning optical system having a deflecting mirror for selectively deflecting a beam of the light from said light modulating element which has been subjected to said modulation, and a projection optical system for projecting said beam from said deflecting mirror.

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5. A projecting apparatus according to Claim 4, wherein said deflecting mirror has a light passing area and a light reflecting area, only the beam substantially subjected to said modulation is reflected by said light reflecting area, and only a beam substantially not subjected to said modulation

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passes through said light passing area.

6. A projecting apparatus according to Claim 5,
wherein said light modulating element is an element
5 which reflects said light, and said light of said
illuminating optical system passes through said light
passing area of said deflecting mirror and enters said
reflection type light modulating element.

10 7. A projecting apparatus according to Claim 6,
wherein said illuminating optical system has a lens
system of which said light modulating element side
opposed to said light modulating element is
telecentric, and the light from said reflection type
15 light modulating element propagates to the position of
said deflecting mirror through said telecentric lens
system.

20 8. A projecting apparatus according to any one
of Claims 5 to 7, wherein said light modulating
element has an elongate light modulating area in which
a plurality of light modulating portions corresponding
to pixels are arranged in a certain direction, and
said illuminating optical system has one or more
25 anamorphic optical elements for illuminating said
light modulating element with a light elongate in the
direction of arrangement of said plurality of light

modulating portions.

9. A projecting apparatus according to Claim 8,
wherein said scanning optical system scans the beam
5 from said light modulating element only in a direction
orthogonal to the lengthwise direction of said light
modulating area.

10. A projecting apparatus according to Claim 9,
10 wherein said light modulating element has a light
modulating area in which a plurality of light
modulating portions are arranged also in the direction
orthogonal to said lengthwise direction.

11. A projecting apparatus according to Claim 8,
15 wherein said scanning optical system scans the light
from said light modulating element in the lengthwise
direction of said light modulating area and a
direction orthogonal to said lengthwise direction.

20 12. An optical scanning apparatus according to
Claim 1, wherein said light modulating element has the
function of forming a light diffracted, deflected or
scattered or forming a light not diffracted, deflected
25 or scattered, in conformity with an input signal,
comprises, for example, an electro-mechanical element
or a liquid crystal element, and forms a light

diffracted, deflected or scattered in conformity with an ON signal and form a light not diffracted, deflected or scattered in conformity with an OFF signal.

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13. A projecting apparatus according to any one of Claims 4 to 7, wherein said light modulating element modulates light in conformity with an image signal, and a two-dimensional image is formed by the beam projected by said projection optical system.

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14. A projecting apparatus according to Claim 8, wherein said light modulating element modulates light in conformity with an image signal, and a two-dimensional image is formed by the beam projected by said projection optical system.

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15. A projecting apparatus according to Claim 14, wherein said scanning optical system scans the beam from said light modulating element only in a direction orthogonal to the lengthwise direction of said light modulating area.

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16. A projecting apparatus according to Claim 15, wherein said light modulating element has a light modulating area in which a plurality of light modulating portions are arranged also in the direction orthogonal to said lengthwise direction.

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